

## 2.0 WASTE MANAGEMENT UNITS

The waste management units described in this permit application are located at Technical Area (TA) 55 in the central portion of the Los Alamos National Laboratory (LANL) as shown in Attachment A on Figure A-1. These units include:

- Seven Container Storage Units (CSU) - B45, B40, B05, K13, and the Vault located at TA-55-4; a container storage pad located northwest of TA-55-4; and TA-55-185.
- One Storage Tank System – consisting of 3 tank components, a total of 16 tanks located in Room 401 at TA-55-4.
- One Cementation Unit – including a pH column, vacuum trap, two motor-driven mixers, four impellers, piping and a glovebox, located in Room 401 at TA-55-4.

The general location of the each waste management unit is shown in Attachment A of this permit application on Figure A-2. Detailed information on and design drawings for each are presented in Attachments G, H and I, respectively. Attachment J of this permit application contains detailed information on general facility operations and management practices.

### 2.1 CONTAINER STORAGE

The information provided in this section is submitted to address the applicable container storage requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC) §270.15, and 20.4.1 NMAC §264, Subpart I, revised June 14, 2000 [6-14-00]. Container storage at TA-55 consists of seven CSUs that provide storage for hazardous and mixed wastes. Table 2-1 identifies each of the CSUs to be permitted, including the location and maximum storage capacity.

**Table 2-1**  
**Container Storage Unit Locations and Maximum Capacities at Technical Area 55**

CSU Name	Location	Capacity <sup>a</sup> (gallons)
B40	TA-55-4, Basement	21,500
B05	TA-55-4, Basement	3,600
K13	TA-55-4, Basement	2,500
B45	TA-55-4, Basement	11,000
Vault	TA-55-4, Basement	4,000
Storage Pad	Northwest of TA-55-4	135,000
TA-55-185	West of TA-55-4	30,000

a Reflects the calculation of maximum capacities with a minimum aisle space of 2 feet.

TA = Technical Area

CSU = container storage unit

The following sections provide a brief description of the waste management practices associated with the TA-55 CSUs. General dimensions, containment features, and materials of construction for each CSU are provided in Attachment G of this permit application to satisfy the requirements of 20.4.1 NMAC §270.15(a)(1) and (2) [6-14-00].

### 2.1.1 Storage Containers

Waste containers stored in the TA-55 CSUs include: 0.25, 0.5, 0.75, 1, 2, 4, and 6 liter (L)/quart containers; 5, 10, 12, and 15 gallon (gal) containers, 30-, 55-, and 85-gal drums; special order waste boxes; large waste boxes; and standard waste boxes (SWB). Additional information regarding typical storage containers utilized at the TA-55 CSUs is provided in Tables 2-2 and 2-3. These tables do not contain information on all of the possible containers to be used and each container is identified by size without limiting the materials of construction.

**Table 2-2**  
**Typical Storage Containers Used at the Technical Area 55 Container Storage Units**

Container Type	Description	Requirements
Non-Bulk Performance-Oriented Packaging <sup>a</sup>	Steel drums	<ul style="list-style-type: none"> <li>• 49 CFR §178.504.</li> <li>• Maximum capacity not to exceed 119 gal.</li> <li>• Maximum net mass not to exceed 882 lbs.</li> </ul>
	Aluminum drums	<ul style="list-style-type: none"> <li>• 49 CFR §178.505.</li> <li>• Maximum capacity will not exceed 119 gal.</li> <li>• Maximum net mass will not exceed 882 lbs.</li> </ul>
	Metal drums other than steel or aluminum	<ul style="list-style-type: none"> <li>• 49 CFR §178.506.</li> <li>• Maximum capacity will not exceed 119 gal.</li> <li>• Maximum net mass will not exceed 882 lbs.</li> </ul>
	Fiber drums	<ul style="list-style-type: none"> <li>• 49 CFR §178.508.</li> <li>• Maximum capacity will not exceed 119 gal.</li> <li>• Maximum net mass will not exceed 882 lbs.</li> </ul>
	Plastic drums	<ul style="list-style-type: none"> <li>• 49 CFR §178.509.</li> <li>• Maximum capacity will not exceed 119 gal.</li> <li>• Maximum net mass will not exceed 882 lbs.</li> </ul>
	Plastic Jerricans	<ul style="list-style-type: none"> <li>• 49 CFR §178.509.</li> <li>• Maximum capacity will not exceed 16 gal.</li> <li>• Maximum net mass will not exceed 265 lbs.</li> </ul>
	Steel or aluminum boxes	<ul style="list-style-type: none"> <li>• 49 CFR §178.512.</li> <li>• Maximum net mass will not exceed 882 lbs.</li> </ul>
	Aluminum or steel Jerricans	<ul style="list-style-type: none"> <li>• 49 CFR §178.511.</li> <li>• Maximum capacity will not exceed 16 gal.</li> <li>• Maximum net mass will not exceed 265 lbs.</li> </ul>
	Plywood boxes	<ul style="list-style-type: none"> <li>• 49 CFR §178.514.</li> <li>• Maximum net mass will not exceed 882 lbs.</li> </ul>
	Fiberboard boxes	<ul style="list-style-type: none"> <li>• 49 CFR §178.516.</li> <li>• Maximum net mass will not exceed 882 lbs.</li> </ul>
	Composite packaging with inner receptacles	<ul style="list-style-type: none"> <li>• 49 CFR §178.522.</li> <li>• Maximum capacity will not exceed 66 gallons.</li> <li>• Maximum net mass will not exceed 882 lbs.</li> </ul>

**Table 2-2 (continued)**  
**Typical Storage Containers Used at the Technical Area 55 Container Storage Units**

Container Type	Description	Requirements
Non-Bulk Performance-Oriented Packaging <sup>a</sup> (continued)	Composite packaging with inner glass, porcelain, or stone receptacles	<ul style="list-style-type: none"> <li>• 49 CFR §178.523.</li> <li>• Maximum net capacity for liquids is 16 gal.</li> <li>• Maximum net mass for solids is 165 lbs.</li> </ul>
Intermediate Bulk Performance-Oriented Packaging <sup>b</sup>	Metal intermediate bulk containers	49 CFR §178.705.
	Rigid plastic intermediate bulk containers	49 CFR §178.706.
	Composite intermediate bulk containers	49 CFR §178.707.
	Fiberboard intermediate bulk containers	49 CFR §178.708.
	Wooden intermediate bulk containers	49 CFR §178.709.
	Flexible intermediate bulk containers	49 CFR §178.710.
Cylinders <sup>c</sup>	Seamless steel cylinders	DOT Specification 3A, 3AX, 3AA, 3AAX, 3B, 3E, or 3T in 49 CFR, Part 178, Subpart C.
	Welded or brazed steel cylinders	DOT Specification 4B, 4BA, 4B240ET, 4AA480, 4L, or 4BW in 49 CFR, Part 178, Subpart C.
	Seamless or welded aluminum cylinders	DOT Specification 3AL or 4E in 49 CFR, Part 178, Subpart C.
	Seamless nickel cylinders	DOT Specification 3BN in 49 CFR, Part 178, Subpart C.
Containers Used for Transport of Radioactive Materials	DOT Containers	DOT Specification 7A in 49 CFR §178.350.
	IP Containers	Industrial Packaging IP-1, IP-2, or IP-3 in 49 CFR §173.411.
	Exceptions	49 CFR §173.410.

a Manufacturer has provided the required UN marking in accordance with 49 CFR §178.503.

b Marked by the manufacturer in accordance with 49 CFR §178.703.

c Marked with the applicable DOT specification number in accordance with 49 CFR §178.35.

CFR = Code of Federal Regulations

DOT = U.S. Department of Transportation

IP = Industrial Packaging

gal = gallons

lbs = pounds

**Table 2-3**  
**Storage Containers Used at Technical Area 55 for Mixed Transuranic Waste**

Container Type	Description	Requirements	Filter Vents <sup>a</sup>
Standard 55-gallon Drum	<ul style="list-style-type: none"> <li>Gross internal volume of 7.3 ft<sup>3</sup> (0.21 m<sup>3</sup>).</li> <li>Constructed of mild steel.</li> <li>May also contain ridge, molded polyethylene (or other compatible material) liner.</li> </ul>	DOT Specification 7A in 49 CFR §178.350.	One or more filter vents installed on top of the container.
Standard Waste Box	Gross internal volume of 66 ft <sup>3</sup> (1.88 m <sup>3</sup> ).	DOT Specification 7A in 49 CFR §178.350.	
Standard 85-gallon Drum Over Pack	<ul style="list-style-type: none"> <li>Gross internal volume of 11.3 ft<sup>3</sup> (0.32 m<sup>3</sup>).</li> <li>Used for overpacking contaminated 55-gallon drums.</li> </ul>	Not Applicable	
Oversized Waste Box	<ul style="list-style-type: none"> <li>Gross internal volume greater than 11.3 ft<sup>3</sup> (0.32 m<sup>3</sup>).</li> <li>Used for oversized waste.</li> </ul>	Not Applicable	Two or more filter vents installed on sides of container.

a Vents are high-efficiency particulate air grade filters to preclude container pressurization caused by gas generation and to prevent particulate material from escaping. Vents have an orifice approximately 0.375 inches (9.53 millimeters [mm]) in diameter through which internally generated gas may pass. Filter media can be any material (e.g., composite carbon, sintered metal).

CFR = Code of Federal Regulations

DOT = U.S. Department of Transportation

ft<sup>3</sup> = cubic feet

m<sup>3</sup> = cubic meters

### 2.1.2 Minimum Aisle Space and Storage Configuration

Waste containers at the TA-55 CSUs are arranged in rows with a minimum aisle space of 24 inches (in.). Storage configuration within a row depends upon the type of container, its size, and its weight restrictions. Containers will be stacked to a maximum of two high unless they are too large or heavy to be supported by the container(s) to be located underneath and/or maneuvered with available forklift/crane/hoist. Fifty-five-gal drums, SWBs, and large waste boxes are arranged in rows and can be stacked to a maximum of 10 feet (ft) high, based on the Code of Federal Regulations (CFR) requirements in 49 CFR 178.606(c), "Performance-Oriented Stack Test".

### 2.1.3 Authorized Waste

The TA-55 CSUs are used to store hazardous and mixed waste containers bearing one or more of the U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers presented in the most recent version of the "Los Alamos National Laboratory General Part A," hereinafter referred to as the General Part A.

#### 2.1.4 Condition of Containers [20.4.1 NMAC §264.171]

Any container at the TA-55 CSUs that is not in good condition either during or prior to storage (e.g., severe rusting, apparent structural defects) is overpacked or the wastes are repackaged in containers that are in good condition. Containers must be without severe rust, dents, deep scratches, bulges, or other structural defects. Any waste container that is not in good condition (e.g., severe rusting, apparent structural defects) is overpacked, or the waste is repackaged in a container that is in good condition and is compatible with the waste materials, packaging materials, and/or other container. Overpacked and/or new containers must also be compatible with and resistant to environmental conditions. This meets the requirements of 20.4.1 NMAC §264.171 [6-14-00].

TA-55 uses the LANL procurement system, administered by the Supply Chain Management Division (SUP), for procurement of waste container components. Suppliers of waste container components are audited by SUP for qualification prior to conducting business transactions. SUP also uses approved procurement product specifications that include quality assurance requirements and ensure that container package specifications meet U.S. Department of Transportation (DOT) (49 CFR 173.410) requirements for Type A/7A packages.

Containers procured by SUP include liners if required for the container to pass the manufacturer's tests for Type A/7A compliance. When liners are procured individually a representative sample of the purchased liners is inspected for compliance with appropriate specifications using an approved inspection procedure. It is the generator's responsibility to ensure the container and pedigree is inspected for compliance with the specification provided to the supplier. Containers that do not pass inspection are segregated from those that are acceptable to prevent inadvertent use.

#### 2.1.5 Compatibility of Waste with Containers [20.4.1 NMAC §264.172]

The TA-55 CSUs will only store containers made of or lined with materials that will not react with and are otherwise compatible with the wastes stored in them. Prior to filling the container with waste, all container components (e.g., lid, liner, and interior/exterior surface) are inspected to ensure container integrity as well as compatibility with the type of waste to be placed into the container. The "Los Alamos National Laboratory Waste Acceptance Criteria" (LANL, 2003a) requires that compatibility of the waste container, including liners, and the waste to be containerized is ensured. Information regarding the liner's compatibility with the waste components can be obtained from the container/liner manufacturer. This fulfills the requirements of 20.4.1 NMAC §264.172 [6-14-00].

#### 2.1.6 Management of Containers [20.4.1 NMAC §264.173(a) and (b)]

Waste containers stored at the TA-55 CSUs are handled in a manner that will not cause them to rupture or leak, as required in 20.4.1 NMAC §264.173(b) [6-14-00]. All containers are kept closed during storage in accordance with 20.4.1 NMAC §264.173(a) [6-14-00], except when waste is added to or removed from the container or when a container's contents need to be repackaged. In addition to the containers being closed, the closing devices will be secured in a manner that provides no visible holes, gaps, or other open spaces into the interior of the container, in accordance with 20.4.1 NMAC §264.1086(c)(1)(iii)[6-14-00].

Five of the CSUs are provided with ventilation from the TA-55-4 facility ventilation system. This ventilation system is designed to monitor air pressure and ambient air for personnel working in areas where hazardous or mixed waste is managed. It creates zones within TA-55-4 that are at a lower pressure than the outside air (negative pressure) to prevent the movement of contaminants from the building. Air flows from the zones of highest pressure to those of lowest pressure (i.e., highest potential contamination areas). The airflow through the different zones is carefully balanced and controlled to provide the greatest protection to personnel as well as to the environment. If negative air pressure exceeds designed limits, a ventilation alarm (a slow, repeating chime sound) is activated.

Detailed information on general facility operations and container management practices are contained in Attachments G and J of this permit application.

##### 2.1.6.1 Packaging and Overpacking

Waste packaging/repackaging at TA-55 is conducted at the K13 and B40 CSUs. It includes the addition of waste received from generators into secondary containers or movement of waste from one secondary container to another. Waste received into the K13 CSU consists of small waste items that are eventually packed into secondary containers to maximize storage and shipping efficiency. The B40 CSU receives large waste items that need to be packaged into an SWB or ST45/ST90 shipping container. The following procedures are used to package and repackage waste:

- "Packing TRU Waste Containers," NMT7-WI3-SOP-TA55-013 (LANL, 2002b).
- "Managing Solid Low-Level Waste at TA-55," NMT7-HCP-TA55-DP-02L (LANL, 2002c).
- "Certification and Disposal of Low-Level, Oversize Waste," NMT7-WI3-TA55-HCP-DP-02L (LANL, 1999).

Overpacking will occur at all of the TA-55 CSUs when a primary container fails to provide adequate containment. The overpack container will then be considered the primary container.

#### 2.1.6.2 Labeling

Each container of waste will be labeled with a “Hazardous Waste” label bearing the following information:

- Generator name and address
- EPA Identification Number
- The accumulation start date
- The applicable EPA Hazardous Waste Number(s)

A “Radioactive Material/Radioactive Waste” label is applied, if appropriate. LANL will follow all applicable U.S. Department of Energy (DOE) and Nuclear Regulatory Commission (NRC) procedures, requirements and guidelines as they apply to storage, treatment, and radioactive decontamination of the TA-55 waste management units. The DOE and NRC regulations are not preempted by federal or state regulations governing the handling of hazardous waste. Compliance with all available DOE and NRC requirements is protective of human health and the environment.

#### 2.1.6.3 Transportation of Containers

Flatbed trucks, trailers, and/or forklifts may be used to transport waste containers to and from the waste management units at TA-55. Forklift operations may use a boom, if necessary, to improve handling capabilities. Small containers may be handled manually or with a dolly. The use of proper handling equipment, appropriate to a container’s size and weight, helps to prevent hazards while moving containers.

#### 2.1.7 Containment Systems [20.4.1 NMAC §270.15(a)(1-5) and 270.15(b)(1-2)]

In accordance with 20.4.1 NMAC §270.15(b)(1) [6-14-00], information contained in LANL’s waste databases or waste characterization records can be used initially to verify the absence of free liquids in containers. In addition to records, visual examination can be used to verify the absence of free liquids. Potential liquids that might accumulate at the TA-55 CSUs are contained within containment systems (e.g., self-containment pallets) at each storage location until the liquid is removed. All secondary containment systems are designed to contain at least 10 percent of the volume of potential liquid-bearing containers or the volume of the largest container, whichever is greater, pursuant to the requirements of 20.4.1 NMAC §264.175(b)(3) [6-14-00]. Table 2-4 summarizes the capacity associated with the containment systems provided for each CSU at TA-55.

**Table 2-4**  
**Containment System Capacities for Container Storage at Technical Area 55**

Container Storage Unit	Location	Waste Types	Maximum Capacity (gallons)	Containment System(s)	Containment Capacity (gallons)
B40	TA-55-4, Basement	Solid and Liquid	21,500	Self-Containment Pallets	112 <sup>a</sup>
				Covered Self-Containment Pallets	112 <sup>a</sup>
				Single-drum Containment Pallets	55
K13	TA-55-4, Basement	Solid and Liquid	2,500	Cabinets	10
				Basement	46,258
				Self-Containment Pallets	112 <sup>a</sup>
Vault	TA-55-4, Basement	Solid and Liquid	4,000	Basement	46,258
B05	TA-55-4, Basement	Solid	3,600	NA	NA
B45	TA-55-4, Basement	Solid	11,000	NA	NA
TA-55-185	West of TA-55-4	Solid	30,000	NA	NA
Storage Pad	Northwest of TA-55-4	Solid and Liquid	135,000	Covered Self-Containment Pallets	112 <sup>a</sup>

a No more than 110 gallons (i.e., two 55-gal drums) of free liquids will be stored on an individual self-containment pallet.

TA = technical area

NA = not applicable because this CSU stores waste that is in the solid form only.

Any accumulated liquids are removed in a timely manner to prevent overflow of the containment system. The collected liquids are then transferred to appropriate containers and sampled, as necessary. If the accumulated liquids are from an identifiable source, or from water generated during fire-suppression activities, the resulting material may be characterized as a newly-generated waste and analyzed for constituents known to be components of the source. If the accumulated liquids are from other than an identifiable source, the resulting material will be analyzed for the appropriate potential parameters listed in Appendix E of the most recent version of the "Los Alamos National Laboratory General Part B Permit Application," hereinafter referred to as the LANL General Part B. Containers of collected liquids are stored with secondary containment, pending analytical results, which determine how the waste liquids will be managed. This method of removal and analysis of accumulated liquids fulfills the requirements of 20.4.1 NMAC §270.15(a)(5) [6-14-00], for prevention of overflow.

### 2.1.8 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking containers, deterioration of containers, and/or loss of integrity of the containment system, as required by 20.4.1 NMAC §264.174 [6-14-00]. The inspections include checking the structural integrity of the containers (e.g., for bulging or warping). Inspections will follow the Inspection Plan in Attachment C of this permit application.



Inspections of the containers while they are in storage will be used to verify that there are no visible holes, gaps, or other open spaces into the interior of containers while they are in storage. These inspections will be conducted in accordance with "Storage Area Inspections," NMT7-WI1S-HCP-TA-55-011 (LANL, 2001).

All containers are regularly inspected for evidence (e.g., corrosion, visible staining, bulges, rupture, dents, and leaks) that may indicate surface contamination. If any evidence of surface contamination is detected, the waste container is either overpacked in an appropriate container or the waste is repackaged in a new container as discussed in Section 2.1.4.

2.1.9 Special Requirements for Ignitable, Reactive, and Incompatible Wastes [20.4.1 NMAC §264.17 and 20.4.1 NMAC §§270.15(c) and 270.15(d)]

Ignitable or reactive waste is stored at the K13 and B40 CSUs and on the container storage pad. Pursuant to 20.4.1 NMAC §264.17 [6-14-00], LANL will adhere to the following specific waste management procedures for ignitable and reactive waste. Containers with ignitable or reactive wastes are located at least 50 ft from the facility property line (Figure A-5) at all times and are protected from sources of ignition or reaction. Waste management practices at the TA-55 CSUs minimize the possibility of accidental ignition. There are no sources of open flames allowed at the CSUs, and smoking is prohibited. Cutting and welding activities are never conducted in the vicinity of waste containers without proper controls and only non-sparking tools are used to handle waste containers, and lightning rods are located on all storage structures. "No Smoking" signs are conspicuously placed wherever there is a potential hazard from ignitable or reactive waste.

Precautions are taken to prevent reactions that may produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment or produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions. These precautions include keeping containers closed during storage and venting containers of mixed transuranic waste. Together, these measures meet the requirements of 20.4.1 NMAC §§264.17(a) and (b) and 264.176[6-14-00].

Incompatible wastes are separated and segregated from other wastes and materials by means of berm, dike, wall, or other specific means (e.g., secondary containment pallets, cabinets, distance). Incompatible waste is also stored at TA-55 in accordance with the following DOT compatibility groups:

- Flammables (Class 3)
- Oxidizers (Class 5.1)
- Combustible/Noncombustible Miscellaneous Hazardous Material (Class 9)
- Corrosives (Class 8)
- Poisons (Class 6)
- Radioactive (Class 7)
- Acids (Class 8)
- Reactive (Class 4)
- Non-regulated materials.

In addition, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste, as required by 20.4.1 NMAC §264.177(a) and (b), and 20.4.1 NMAC §270.15(d).

Ignitable, reactive, and incompatible wastes will not be stored at the B05, B45, Vault, and TA-55-185 CSUs; therefore, the requirements of 20.4.1 NMAC §264.17, and 20.4.1 NMAC §270.15(c) and (d) [6-14-00] do not apply.

#### 2.1.10 Closure

Closure will consist of partial closure of one or more of the CSUs at TA-55 while leaving the other hazardous and mixed waste management units in service. Partial closure activities will be accomplished by removal of hazardous wastes and residues from the surfaces and/or equipment associated with the CSU to be closed and that may have come into contact with the waste. Detailed closure procedures for the TA-55 CSUs are addressed in Attachment F.1 of this permit application. This information is provided to meet the requirements of 20.4.1 NMAC §§264.111 and 264.178 [6-14-00].

#### 2.1.11 Control of Run-On/Runoff

Run-on into the CSUs at TA-55-4 and TA-55-185 will not occur due to their location inside buildings. The slopes surrounding these buildings direct potential run-on away from each building. The container storage pad is located above grade, has positive surface drainage, and has a culvert beneath it that will direct potential run-on away from this storage location. In addition, containers stored on the pad are covered. Special order waste boxes, large waste boxes, and SWBs will not be covered. Figures A-5 and A-9 in Attachment A of this permit application show the contours and surface drainage around the storage pad, TA-55-4, and TA-55-185. This information is provided to meet the requirements of 20.4.1 NMAC §264.175(b)(4), and 20.4.1 NMAC §270.14(b)(8)(ii) [6-14-00].

Runoff to the environment of liquids resulting from precipitation, fire-suppression activities, leaks, and/or spills is controlled at each of the TA-55 CSUs by secondary containment. Potential liquids that might accumulate are contained within secondary containment (e.g., self-containment pallets) until the liquid is removed using a portable pump, a high-efficiency particulate air (HEPA) vacuum, and/or sorbents, depending on the volume. In the event of a hazardous and/or mixed waste spill that results in the accumulation of free liquids in the secondary containment system, all free liquids will be removed within 24 hours of discovery, unless “as low as reasonably achievable” (ALARA) concerns prevent accessibility. This information is provided to meet the requirements of 20.4.1 NMAC §270.14(b)(8)(ii) [6-14-00].

## 2.2 STORAGE TANK SYSTEM

The information provided in this section is submitted to address the applicable tank storage requirements of 20.4.1 NMAC §270.16, and 20.4.1 NMAC, Subpart V, Part 264, Subpart J [6-14-00]. There is one storage tank system at TA-55. This tank system is comprised of 3 tank components and consists of a total of 16 tanks with a maximum storage capacity of 1,020 L or approximately 266 gal. Table 2-5 identifies each tank component, its location, the number of tanks, and capacity of each tank.

**Table 2-5**  
**Storage Tank System at Technical Area 55<sup>a</sup>**

<b>Tank Component</b>	<b>Location</b>	<b>Number of Tanks</b>	<b>Tank Capacity<sup>b,c</sup> (liters)</b>	<b>Tank Capacity<sup>b,c</sup> (gallons)</b>
Evaporator Glovebox Tank	TA-55-4, Room 401	1	270	71
Cementation Unit Pencil Tanks	TA-55-4, Room 401	5	50	13
Pencil Tanks	TA-55-4, Room 401	10	50	13

a The storage tank system consists of 3 components that store the same type of waste and share a common piping network.

b The overall capacity of the unit is 1,020 liters [~266 gallons].

c The tank capacity listed is for each individual tank associated with that component.

TA = technical area

The following sections provide a brief description of the waste management practices associated with the TA-55 storage tank system. Detailed descriptions of each tank component are proved in Attachment H of this permit application.

### 2.2.1 Authorized Waste

The TA-55 storage tank system is used to store mixed waste solutions bearing one or more of the EPA Hazardous Waste Numbers presented in the most recent version of the LANL General Part A.

## 2.2.2 Containment Systems [20.4.1 NMAC §270.16(g) and 20.4.1 NMAC §264.193 (a-d) and (e)(1)]

The storage tank system is located at TA-55-4 inside Room 401. This room has a floor and walls that completely surround the tank system (i.e., tanks, ancillary equipment, and piping) and serve as secondary containment, therefore, the secondary containment meets the requirements of 20.4.1 NMAC §264.193(e)(1) for an external liner system.

The walls and floor of Room 401 will prevent the migration of wastes or accumulated liquids to any soil, groundwater, or surface water and are capable of collecting releases and accumulated liquids until the material is removed. The concrete in Room 401 is sealed with an epoxy or similar coating to aid in decontamination should a spill occur. Secondary containment is primarily provided by the floor, which consists of 10 in. of concrete. In addition, tertiary containment is provided by the floor of the basement level of TA-55-4, which also consists of 10 in. of concrete. The construction joints in the floor slab and exterior walls of Room 401 are all constructed with chemical-resistant water stops in place. The conduit piping penetrating the floor of the room is secured with rubber boots, bushings, and flanges. All penetrations (e.g., holes for conduit) in the floor have been sealed to prevent liquids from entering the penetrations.

The secondary containment is sized to contain 100 percent of the volume of the largest tank, pursuant to the requirements of 20.4.1 NMAC §264.193(e)(1)(i) [6-14-00]. Table 2-6 identifies the secondary containment storage capacity as compared to the tank capacity for each component of the storage tank system.

**Table 2-6**  
**Secondary Containment Capacities for the Storage Tank System**

Storage Tank System Component	No. of Tanks	Tank Capacity (gallons) <sup>a</sup>	Location	Secondary Containment	Secondary Containment Capacity (gallons)
Evaporator Glovebox Tank	1	71	TA-55-4, Room 401	TA-55-4, Room 401	10,773 <sup>b</sup>
Cementation Unit Pencil Tanks	5	13			
Pencil Tanks	10	13			

a The tank capacity listed is for each individual tank associated with the component.

b Secondary containment capacity is based on Room 401 which is recessed 2.5 inches and has dimensions measuring 60 feet long by 75 feet wide.

TA = technical area

### 2.2.3 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking, deteriorating, or corroding tanks, or components of the storage tank system and identify the loss of integrity of the containment system, as required by 20.4.1 NMAC §§264.15, and 264.195 [6-14-00]. Inspections of the storage tank system will follow the Inspection Plan in Attachment C of this permit application.

### 2.2.4 Special Requirements for Ignitable, Reactive, and Incompatible Wastes

No ignitable, reactive, or incompatible mixed wastes will be stored in the storage tank system.

### 2.2.5 Closure

Closure will consist of partial closure of the storage tank system at TA-55 while leaving the other waste management units in service. Partial closure will be accomplished by the removal of mixed wastes and residues from the surfaces and/or the equipment that may have come in contact with the wastes. Closure will include decontamination and disposal activities that will ensure removal of mixed wastes and residues to established cleanup levels. Detailed closure procedures for the storage tank system are addressed in Attachment F.2 of this permit application. This information is provided to meet the requirements of 20.4.1 NMAC §264.111 [6-14-00].

### 2.2.6 Control of Run-On/Runoff

The storage tank system is located inside a building that prevents it from exposure to precipitation and prevents contaminant mobility out of the containment system. The slope surrounding the building directs potential run-on away from the building and prevents flooding of the secondary containment area provided for the tanks.

Runoff to the environment of liquids resulting from fire-suppression activities, leaks, and/or spills is prevented by the secondary containment in Room 401, as described in Section 2.2.2. Potential liquids that might accumulate are contained within secondary containment (e.g., self-containment pallets) until the liquid is removed using a portable pump, a HEPA vacuum, and/or sorbents, depending on the volume. In the event of a hazardous and/or mixed waste spill that results in the accumulation of free liquids in the secondary containment system, all free liquids will be removed within 24 hours of discovery, unless ALARA concerns prevent accessibility. This information is provided to meet the requirements of 20.4.1 NMAC §270.14(b)(8)(ii) [6-14-00].

## 2.3 MISCELLANEOUS UNIT – CEMENTATION UNIT

The information provided in this section is submitted to address the applicable miscellaneous unit requirements of 20.4.1 NMAC §270.23, and 20.4.1 NMAC, Subpart V, Part 264, Subpart X [6-14-00].

The cementation unit is located in glovebox GB-454 along the west wall of TA-55-4, Room 401. The unit has been in operation since 1987 and has a maximum capacity of 568 L (approximately 150 gal). It consists of a pH adjustment column, vacuum trap, two motor-driven mixers, four impellers, associated support structures, a glovebox, and piping.

### 2.3.1 Authorized Waste

The TA-55 cementation unit is used to treat solid and liquid mixed wastes bearing one or more of the EPA Hazardous Waste Numbers presented in the most recent version of the LANL General Part A.

### 2.3.2 Containment Systems

The cementation unit shares secondary containment with the storage tank system. Room 401 has a floor and walls that completely surrounds the unit and serve as secondary containment, therefore, the secondary containment requirements of 20.4.1 NMAC §264.193 (1)(iv) are met. A detailed description of the containment features for Room 401 is provided in Section 2.2.2.

Table 2-7 identifies the secondary containment storage capacity for Room 401 as compared to the total capacity of the cementation unit and storage tank system.

**Table 2-7**  
**Containment System Capacity Compared to the**  
**Capacity of the Storage Tank System and Cementation Unit**

Location	Containment System Capacity (gallons)	Waste Management Units	
		Unit	Total Capacity (gallons)
TA-55-4, Room 401	10,773 <sup>a</sup>	Storage Tank System (Evaporator Storage Tanks, Cementation Unit Pencil Tanks, Pencil Tanks)	266
		Cementation Unit	150

a Containment capacity is based on Room 401, which is recessed 2.5 inches and has dimensions measuring 60 feet long by 75 feet wide.

TA = technical area

Secondary containment for the cementation unit will easily contain 100 percent of the volume of the cementation unit and the largest tank of the storage tank system (Section 2.2.2) pursuant to the requirements of 20.4.1 NMAC §246.193(1)(iv).

### 2.3.3 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking, deteriorating, or corroding components of the cementation unit and identify the loss of integrity of the containment system, as required by 20.4.1

NMAC §§264.15 and 264.602 [6-14-00]. Inspections of the cementation unit will follow the Inspection Plan in Attachment C of this permit application.

#### 2.3.4 Special Requirements for Ignitable, Reactive, and Incompatible Wastes

No ignitable, reactive, or incompatible mixed wastes will be treated in the cementation unit.

#### 2.3.5 Closure

Closure will consist of partial closure of the cementation unit while leaving the other regulated hazardous and mixed waste management units at TA-55 in service. Partial closure will be accomplished by the removal of mixed wastes and residues from the surfaces and/or the equipment associated with the cementation unit that may have come in contact with the wastes. Closure will include decontamination and disposal activities that will ensure removal of mixed wastes and residues to established cleanup levels. Detailed closure procedures for the cementation unit are addressed in Attachment F.3 of this permit application. This information is provided to meet the requirements of 20.4.1 NMAC §264.111 [6-14-00].

#### 2.3.6 Control of Run-On/Runoff

The cementation unit is located inside a building that prevents them from exposure to precipitation and prevents contaminant mobility out of the containment system. The slope surrounding the building directs potential run-on away from the building and prevents flooding of the secondary containment area provided for the unit.

Runoff to the environment of liquids resulting from fire-suppression activities, leaks, and/or spills is prevented by the secondary containment in Room 401, as described in Section 2.3.2. Potential liquids that might accumulate are contained within secondary containment (e.g., self-containment pallets) until the liquid is removed using a portable pump, a HEPA vacuum, and/or sorbents, depending on the volume. In the event of a hazardous and/or mixed waste spill that results in the accumulation of free liquids in the secondary containment system, all free liquids will be removed within 24 hours of discovery, unless ALARA concerns prevent accessibility. This information is provided to meet the requirements of 20.4.1 NMAC §270.14(b)(8)(ii) [6-14-00].